



MAY 0 9 2001 1646

TECH CENTER 1600/2900

RAW SEQUENCE LISTING

DATE: 04/26/2001

PATENT APPLICATION: US/09/030,482B

TIME: 11:56:25

Input Set : D:\38109-20007.00 seqlist (final)!.txt

Output Set: N:\CRF3\04262001\I030482B.raw

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         NeuroMed Technologies, Inc.
 7 <120> TITLE OF INVENTION: NOVEL HUMAN CALCIUM CHANNELS AND RELATED
                                                                ENTERED
         PROBES, CELL LINES AND METHODS
11 <130> FILE REFERENCE: 38109-20007.00
13 <140> CURRENT APPLICATION NUMBER: US 09/030,482B
14 <141> CURRENT FILING DATE: 1998-02-25
16 <150> PRIOR APPLICATION NUMBER: US 60/039,204
17 <151> PRIOR FILING DATE: 1997-02-28
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Output Set: N:\CRF3\04262001\I030482B.raw

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205 Leu Asn Val Ala Asn Met Asp Asn Phe Phe Ala Pro Val Phe Thr Met 206 20 25 30 30 30 208 ggc aaa tat tat acg caa ggc gac aag gtg ctg atg ccg ctg gcg att 142 209 Gly Lys Tyr Tyr Thr Gln Gly Asp Lys Val Leu Met Pro Leu Ala Ile 45 45 40 212 cag gct ctg aaa cag ctg atg ttc aaa ttg gtg gcc act gtt gct cga 192 13 Gln Ala Leu Lys Gln Leu Met Phe Lys Leu Val Ala Thr Val Ala Arg 50 55 60 56 60 216 aca cat gct aca ccg tca cac atc acg ggt ggt cct gga aca ggg atg 217 Thr His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met 217 Thr His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met 218 65 70 70 75 80 200 aca acg ggc acc ttc cag gaa gga ggt ggt gcc acc acg ggc acc ttc cag gaa gga ggt ggt cct gga aca acg gga acg 221 His Thr Gly Thr Phe Gln Glu Gly Ala Glu Pro Gly Ser Ser Gln His 222 95 60 95 224 cct gag gca cag tat aca gca ggg ttc acc cca acc acg acc 228 225 Pro Glu Ala Gln Ala Thr Tyr Thr Ala Gly Cys Thr Pro Ala Pro Thr 102 100 105 110 228 ggc gat ccc acc tcc tcg tct tt tt gtc ctt gac ttg gtg tca act tgg gt tt 229 Gly Asp Pro Thr Cys Cys Phe Val Leu Asp Leu Val Cys Thr Trp Phe 120 125 125 125 125 125 125 125 125 125 125			aac	ata	acc	-	atα	αac	aac	ttc		acc	000	att	++0		2 ± σ	96
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209 Gly Lys Tyr Tyr Tyr Thr Gln Gly Asp Lys Val Leu Met Pro Leu Ala Ile 210		~~~	222	+-+				~~~	~			~ <b></b> ~					- 4-4	
210																		144
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214   50																		192
216 aca cat gct aca ccg tca cac atc acg ggt ggt cct gga aca ggg atg 217 Thr His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met 80 220 cac acg ggc acc ttc cag gaa gga gct gag cct ggt tca tct cag cac 28 221 His Thr Gly Thr Phe Gln Glu Gly Ala Glu Pro Gly Ser Ser Gln His 222 236 cac acg ggc acg tat aca gca ggg tgc acc cca gcc ccc acg 33 225 Pro Glu Ala Gln Ala Thr Tyr Thr Ala Gly Cys Thr Pro Ala Pro Thr 226		GIņ		Leu	rys	GIn	Leu	•	Phe	Lys	Leu	Val		Thr	Val	Ala	Arg	
217 Thr His Ala Thr Pro Ser His Ile Thr Gly Gly Pro Gly Thr Gly Met 80																		
218 65																		240
220 cac acg ggc acc ttc cag gaa gga gct gag cct ggt tca tct cag cac 28 221 His Thr Gly Thr Phe Gln Glu Gly Ala Glu Pro Gly Ser Ser Gln His 95 222			His	Ala	Thr	Pro	Ser	His	Ile	Thr	Gly	Gly	Pro	Gly	Thr	Gly	Met	
221   His   Thr   Gly   Thr   Phe   Gln   Gly   Gly   Ala   Glu   Pro   Gly   Ser   Ser   Gln   His   95																		
222   85																		288
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225	222					85					90					95		
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226																		
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130																		432
236 atg tac cag ccg tgc gac gac atg gac ttc ttc gac cgc tgc aag 480 237 Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys Lys 238 145		01.4				1100	Dea		110	Lea	пси	11511		Val	1111	цец	GLY	
237 Met Tyr Gln Pro Cys Asp Asp Met Asp Cys Leu Ser Asp Arg Cys Lys 238 145 240 atc ctg cag gtc ttt gat gac ttc atc ttt atc ttt ttt gcc atg gag 241 Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met Glu 242 244 atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag tgc tac 245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr 246 248 ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtc atg gca ggc 249 Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly 250 252 aac atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc 253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu 254 256 aaa gcc atc aac ctg ccc atg ctg gag at gtc ctg gtg aac ctg ctc 257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 256 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc ttg ttc 257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc ttc ttt 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe		atσ		can	CCG	tac	aac		ata	αa.c	taa	ata		α= c	000	+ ~ ~		490
238 145																		400
240 atc ctg cag gtc ttt gat gac ttc atc ttt atc ttt gcc atg gag       528         241 Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Phe Ala Met Glu       165       170       175         244 atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag ttgc tac       576         245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr       180       185       190         248 ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtc atg gca ggc       624         249 Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly       200       205         252 aac atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc       672         253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu       220         254 210       215       220         255 Asa gcc atc aac cgc gtg ccc atc aac cgc gtg ccc atc aac cgc gtg atc ctg gtg aac ctg ctc       672         256 aaa gcc atc aac cgc gtg ccc atc aac cgc gtg ccc atc aac cgc gtg atc ctg gtg aac ctg ctc       726         257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu Leu       230         260 ctg gac aca ctg ccc atg ctg ccc atg ctg gtg aat gtc ctg ctc ttg ttc ttt       726         261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe			1 Y 1	GIII	FIO	Cys		АЗР	Mec	rsb	Cys		Set	АЗР	AIG	Cys	_	
241 Ile Leu Gln Val Phe Asp Asp Phe Ile Phe Ile Phe Ile Phe Phe Ala Met Glu       165       170       175         244 atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag tgc tac       576         245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr       180       185       190         248 ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtc atg gca ggc       624         249 Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly       200       205         250 aac atc aac ctg tca gcc atc acc gtg cgc gtc ctg agg ccc ctc       672         251 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu       200         252 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc       672         253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu       215         254 210       215         255 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu       240         256 aaa gcc acc ctg ccc atc acc cgc gtg ccc atg ctg ctc ttc ttt       235         257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu       240         260 ctg gac aca ctg ctg ccc atg ctg ctg ctg ctc ttc ttt       260         261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Leu Cys Phe Phe			ata	Car.	a+ a	+++		~~~	++0	2+0	+++		++-	+++	~~~	.+~		F20
242       165       170       175         244 atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag tgc tac       576         245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr       180       185       190         248 ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtg at gca ggc       624         249 Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly       205         250 aac atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc       672         253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu       200         254 210       215       220         255 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc       720         256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc       720         257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu       240         260 ctg gac aca ctg ctg ccc atg ctg ggg aat gtc ctg ctg ctc ttc ttt       768         261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe																		328
244 atg gtg ctc aag atg gtg gcc ctg ggg att ttt ggc aag aag tgc tac 576 245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr 246		116	neu	GIII	val		ASP	ASP	PHE	TTE		тте	Pile	Pile	Ald		GIU	
245 Met Val Leu Lys Met Val Ala Leu Gly Ile Phe Gly Lys Lys Cys Tyr         246		~+ <i>~</i>	~+~	a+ a			~4.~						1					506
246       180       185       190         248 ctc ggg gac aca tgg aac cgc ctg gat ttc ttc atc gtc atg gca ggc       624         249 Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val Met Ala Gly       250       200       205         250 aca atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc       672         253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu       254       210       215         256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc       720         257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu       240         258 225       230       235         260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc ttc ttt       768         261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe																		5/6
248         ctc         ggg         gac         aca         tgg         aac         cgc         ctg         gat         ttc         ttc         atc         gtc         atg         gca         ggc         624           249         Leu         Gly         Asp         Thr         Trp         Asn         Arg         Leu         Asp         Phe         Phe         Ile         Val         Met         Ala         Gly         200         205         200         205         200         205         200         205         200         205         200         205         200         205         200         200         200         200         200         200         200         200         200         200         200         200		met	vaı	Leu		мет	vaı	Ата	Leu		TTE	Phe	GTĀ	ьуs		Cys	Tyr	
249       Leu       Gly       Asp       Thr       Trp       Asn       Arg       Leu       Asp       Phe       Phe       Ile       Val       Met       Ala       Gly         250       195       200       205       205         252       aac       atc       acc       gtg       cgc       gtc       ctg       agg       ccc       ctc       672         253       Asn       Ile       Asn       Leu       Ser       Ala       Ile       Arg       Thr       Val       Arg       Val       Leu       Arg       Pro       Leu         254       210       215       220       2																		
250																		624
252 aac atc aac ctg tca gcc atc cgc acc gtg cgc gtc ctg agg ccc ctc 253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu 254 210 215 220 256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc 257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 225 230 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Leu Cys Phe Phe		Leu	Gly		Thr	Trp	Asn	Arg		Asp	Phe	Phe	Ile		Met	Ala	Gly	
253 Asn Ile Asn Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu 254 210 225 256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc 720 257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 225 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 768 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe																		
254 210 215 220  256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc 720  257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu  258 225 230 235 240  260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 768  261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe																		672
256 aaa gcc atc aac cgc gtg ccc agt atg cgg atc ctg gtg aac ctg ctc 257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 225 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe		Asn	Ile	Asn	Leu	Ser	Ala	Ile	Arg	Thr	Val	Arg	Val	Leu	Arg	Pro	Leu	
257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 225 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 768 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe																		
257 Lys Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Asn Leu Leu 258 225 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctg ctc tgc ttc ttt 768 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe																		720
258 225 230 235 240 260 ctg gac aca ctg ccc atg ctg ggg aat gtc ctg ctc tgc ttc ttt 768 261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe																		
261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe																		
261 Leu Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe	260	ctg	gac	aca	ctg	ccc	atg	ctg	ggg	aat	gtc	ctq	ctg	ctc	tgc	ttc	ttt	768
	261	Leu	Asp	Thr	Leu	Pro	Met	Leu	Gly	Asn	Val	Leu	Leu	Leu	Cys	Phe	Phe	
262 245 250 255			_						-						-			



DATE: 04/26/2001 PATENT APPLICATION: US/09/030,482B TIME: 11:56:25

Input Set : D:\38109-20007.00 seqlist (final)!.txt

Output Set: N:\CRF3\04262001\I030482B.raw

264	gtc	ttc	ttc	atc	ttt	.ggc	atc	ata	ggt	gtg	cag	ctc	tgg	gcg	ggc	ctg	816
	Val	Phe	Phe		Phe	Gly	Ile	Ile	_	Val	Gln	Leu	$\mathtt{Trp}$		Gly	Leu	
266				260					265					270			
	_	_		_	_		ctg									_	864
	Leu	Arg		Arg	Cys	Phe	Leu		Glu	Asn	Phe	Thr		Gln	Gly	Asp	
270			275					280					285				010
							tac										912
	vaı		ьeu	PIO	Pro	туг	Tyr 295	GIN	PLO	GIU	GIU	300	ASP	GIU	мес	Pro	
274	++0	290	+ ~ ~	+ 00	at a	+ 00		~~~	22+	~~~	2+2		~~~	+ ~ ~	ont.	~ ~ ~	960
							ggc Gly										900
	305	116	Cys	261	ьеu	310	СТУ	АЗР	ASII	СТУ	315	Mec	GLY	Суз	1113	320	•
		CCC	cca	ctc	ааσ		cag	aac	cat	σασ		tac	cta	tcc	ааσ		1008
							Gln										1000
282				200	325	014	0	011		330	010	<b>0</b> 1 <b>0</b>		001	335		
	qac	qtc	tac	qac	ttt	qqq	gcg	qqq	cqc	caq	qac	ctc	aat	qcc	aqc	qqc	1056
							Ala										
286	_		_	340		_		_	345		-			350		_	
288	ctc	tgt	gtc	aac	tgg	aac	cgt	tac	tac	aat	gtg	tgc	cgc	acg	ggc	agc	1104
289	Leu	Cys	Val	Asn	Trp	Asn	Arg	Tyr	Tyr	Asn	Val	Cys	Arg	Thr	Gly	Ser	
290			355					360					365			•	
	_				_		gcc				-					-	1152.
	Ala		Pro	His	Lys	Gly	Ala	Ile	Asn	Phe	Asp		Ile	Gly	Tyr	Ala	
294		370					375					380					
							gtg										1200
	_	Ile	Val	Ile	Phe		Val	Ile	Thr	Leu		Gly	Trp	Val	Glu		
298						390					395					400	1040
	_				_	_	gct										1248
301	мес	Tyr	ryr	vaı	мет 405	ASP	Ala	HIS	ser	410	туг	ASI	Pne	тте	17r 415	Pne	
	ato	ata	at t	ato		a a t	gag	ata	ato		ata	ata	a t o	aat		taa	1296
		-				-	Glu					_	-		_	-	1230
306	110	Dea	пси	420	110	JCI	Giu	Leu	425	1113	LCu	vu.	nec	430	nop	Cys	
	age	ttc	aσc		αca	caσ	tcc	сса		tat	caa	aat.	σat		ctc	cca	1344
	_		_		-	_	Ser			_			_				
310			435					440	4	- 4		_	445				
312	gga	gtc	gct	gct	gaa	tcc	ctg	ctg	ctg	cga	gac	tct	agc	tcc	tca	gtc	1392
		_	_	_			Leu	_	_	_	_		_			-	
314		450					455					460					
							gcc										1440
		Thr	Asp	Glu	Ala	Ala	Ala	Met	Glu	Asn	Leu	Leu	Ala	Gly	Thr	Ser	
318						470					475					480	
							ctg										1488
	Lys	Gly	Asp	Glu		Tyr	Leu	Leu	Arg		Ala	Gly	Ser	Gln		His	
322					485					490					495		
							ctg										1536
	ser	GIN	Ата		GIN	met	Leu	GTA	-	GTĀ	Leu	стλ	Pro		ser	ьeu	
326	as 2	20+	~~~	500	~~~	000	~~~	+~~	505	200	act	000	acc	510	3.00	202	150/
320	yaa	act	yya	yag	yay	CCC	cac	LCG	Lyg	ayc	CCL	cyg	ycc	aca	ayy	aya	1584
															•		- n

## Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/030,482B

DATE: 04/26/2001 TIME: 11:56:26

Input Set : D:\38109-20007.00 seqlist (final)!.txt

Output Set: N:\CRF3\04262001\I030482B.raw

L:183 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 L:185 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 L:186 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 L:1198 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33